



Data Science Fundamentals

Year 1 (2021/22), Semester 1

SCHOOL OF INFOCOMM TECHNOLOGY

Common ICT Programme

ASSIGNMENT

Weightage:	50%
Individual/Team/Both:	BOTH
Deadline:	<u>Report</u> Soft copy (MeL- SafeAssign): 31 July 2021 2359 hr Hardcopy 2 Aug 2021 onwards (during scheduled class) <u>Presentation</u> Presentations will start in the week beginning 2 August 2021. Submission of slides to MEL will be on the day of presentation, 2359 hrs.

Penalty for late submission:

10 marks per day (including Sunday and public holiday)
No report will be accepted after 7 Aug 2021, 1700hrs.

Plagiarism:

Students are reminded that plagiarism will be dealt with severely.

There is a total of 4 pages (including this page) in this handout.

I. Brief

For this assignment, you will bring to completion the final phases of the Design Thinking process that was started in Week 5. You are to design and implement a dashboard and/or interactive visualisations that allow you to explore a set of given datasets. Your goal is to perform an exploratory analysis of the datasets and develop insights about the data that addresses the needs of your stakeholders. You will be evaluated on the quality of the insights and the details given for the visualisations and dashboard considered.

Stakeholders

1. Students/Parents
2. Polytechnics/Junior Colleges
3. Universities
4. Industry
5. Potential foreign workers/students
6. Ministry of Education

Datasets

There are four different datasets from which you are to analyse and gain insights to build your reports and dashboards. You can use selective or all of the datasets to help you answer the stakeholders Action Statements.

1. Universities Ranking
2. Graduate employment survey of NTU/NUS/SIT/SMS/SUSS/SUTD
3. Universities intake, enrolment and graduates by course
4. Employment change by industry and residential status

II. Scope

Section A: Report (Group/Individual : 20 marks)

Your report should include visuals, diagrams and tables where appropriate to support and enhance its readability. The recommended structure for your report is as follows:

A.1 Introduction (Group: 5 marks)

Provide an introduction of the overall objective of the report and how it was developed to address your stakeholders' needs.

A.2 Stakeholder Background (Individual: 10 marks)

Provide a brief introduction of your chosen stakeholder and **at least 4** exploratory questions that each stakeholder will be interested in. Each member of the team is to select ONE unique stakeholder and inform your tutor before you proceed.

A.3 Actionable Statements (Individual: 5 marks)

Describe the Actionable Statements in respond to the exploratory questions you have highlighted under A.2.

Section B: Data Analysis and Visualisation (Individual : 40 marks)

B.1 Data Analysis and Visualisation (20 marks)

Briefly explain the different visualisations that you have considered. Support each of the visualisation screenshots with an explanation of how to interpret it. You should have **at least 4** different visualisations.

B.2 Dashboard (20 marks)

From the visualisations created, briefly explain how you identify suitable ones to create your dashboards and the process you went through. You may create multiple dashboards that will help you answer the exploratory questions of your stakeholder.

Section C: Conclusion and Report Format (Group: 10 marks)

As a group, share the challenges or problems encountered in doing the analysis. Your report will also be assessed on its quality such as format, presentation, structure, organization and language.

Section D: Reflection (Individual: 10 marks)

Discuss any 3 or more key takeaways from this module, for example:

- What have you learnt from this module (i.e. concepts/theories, new knowledge)?
- Were there any technical or generic skills that you have learnt?
- Was the level of challenge in picking up Power BI manageable?
- Did the lab exercises provided you with a deeper appreciation of Power BI?
- How can the acquired skills help you in future (i.e. other modules, internship, workforce)?
- Did you apply any skills learnt from other modules for this assignment?

Submit your Power BI files in MeL Assignment → “Assignment Power BI Files” with the following naming convention: “*Yourname_XXXX.pbix*”.

Section E: Presentation (Group: 20 marks)

Each group will share your analysis using dashboards and visualisations in a 20 minutes formal presentation including Q&A. Your slides should cover the following:

1. An introduction
2. Individual stakeholder (select 1 visualisation and 1 dashboard)
3. Conclusion

A softcopy of the slides are to be submitted to MEL immediately after presentation.

III. Assessment Criteria

Component	Grade	Criteria
<ul style="list-style-type: none">• Report• Visualisation• Presentation	A+	In-depth analysis coupled with a good list of exploratory questions tailored for target stakeholder. Excellent mix of visualisation with accurate interpretation of all visualisations and dashboards. Content is organised in a logical structure with excellent use of vocabulary. Reflection moves beyond simple description of experience and learning. Excellent presentation flow with detailed sharing of visualisations and dashboards that are highly relevant to target stakeholder.
	A – B	Good level of analysis with a suitable list of exploratory questions for target stakeholder. Good use of visualisation with adequate consistency to build the dashboards supported by appropriate interpretation. Reflection shows attempt to analyse experience and learning. Content is fairly organised with appropriate use of vocabulary. Good presentation with adequate sharing of visualisation and dashboards that provides relevant insights to target stakeholder.
	C – D	Minimal analysis and listing of exploratory questions and poor justification of target stakeholder. Minimal variety of visualisations with poor or wrong interpretations and mediocre design of dashboards. Reflection does not move beyond description of learning experiences. Content is somewhat organised with some use of vocabulary. Brief presentation showing little understanding of stakeholders' requirements and lack of suitable visualisations.
	F	Report is skimpy with unclear content, showing no attempt in consideration of target stakeholder. Minimal or largely wrong visualisations. Minimal effort made on reflection. Skimpy presentation with no clear flow and difficult to understand. Sharing little visualisations and dashboards that takes little or no consideration of target stakeholder.

IV. Plagiarism and Copyright Issues

Plagiarism means, “copying any part of a source, and then submitting it, claiming that it is your own work.”

Please ensure that all the works submitted by you are not copied from other sources. Any attempt to plagiarize will be dealt with severely, and it may result in your failing the module. If you have made any references to certain materials, make sure you cite the sources by acknowledging and providing the information necessary to find the source (e.g. Title and author of book, Internet links, etc.)

Please refer to the following URL for more details:

<http://www.np.edu.sg/tlc/antiplagiarism/policy.htm>

If a student is found to have submitted work not done by him/her, he/she will not be awarded any marks for this assignment. Disciplinary action may also be taken.

Similar action will be taken for the student who allows other student(s) to copy his/her work.

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